

REMARKS

I.

Favorable reconsideration of this application, in light of the present amendment and the following discussion, is respectfully requested.

Claims 1, 3, and 10-12 are pending in this application. Claims 2, 4-9 and 13-20 have been canceled, without prejudice or disclaimer. Claims 1 and 10 have been amended by the present amendment.

In the outstanding Office Action, claims 10-12 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite, claim 1 was rejected under 35 U.S.C. § 102(b) as being anticipated by *Japanese Patent Application Publication No. 10-166705* (hereinafter "*JP 705*"), and claims 3 and 10-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over *JP 705* in view of *Asano et al.*

II.

Claims 1 and 10 have been amended. More particularly, independent claim 1 has been amended to recite that the removing roller spreads and reduces undried ink transferred to the rotating roller from a previously printed side of the sheet. Support for that amendment is found throughout the specification and drawings, for example, page 10 line 22-page 14 line 16. Claim 10 has been amended for clarity to overcome the indefiniteness alleged in the office action.

On page 10 line 23 through page 14 line 16, the present specification describes in detail the performance during both double-sided and multi-color printing operations. More particularly, during a double-sided printing operation, the printed sheet 3 is set on the paper supply tray 4 with the printed side facing downwardly so that at the time of conveying the printed sheet 3, the lower resist roller 11b and the press roller 2 come into contact with the printed side of the printed sheet 3. When the printed side of the printed sheet 3 is not yet dry,

the undried ink is transferred to the peripheries of the resist roller 11b and the press roller 2. The undried ink transferred onto the peripheries of the resist roller 11b and the press roller 2 is spread thinly and reduced on the contact part between the periphery of the resist roller 11b and the periphery of the removing roller 12 and on the contact part between the periphery of the press roller 2 and the periphery of the removing roller 12. In other words, the removing roller 12 removes part of the undried ink from the peripheries of the resist roller 11b and the press roller 2. Consequently, the amount of ink on the peripheries of the resist roller 11b and the press roller 2 is reduced. The ink is thinly spread and the area of the ink in contact with the air increases so that the ink is dried more quickly. The retransfer of the undried ink, passed to the peripheries of the resist roller 11b and the press roller 2, is suppressed to the printed side of the printed sheet 3 so that the printed sheet 3 will not be smudged.

A similar phenomenon occurs during multi-color printing between the pick-up roller 8, separation roller 9, and resist roller 11a, but the undried ink on the printed sheet 3 is on the top side thereof.

III.

The rejection of claim 1 under 35 U.S.C. 102(b) as being anticipated by Japanese patent application publication No. 10-166705 (hereinafter "JP '705") is respectfully traversed.

A computer generated English language translation of JP '705 has been recently obtained. A copy of that English language translation is attached hereto as Appendix I.

Paragraph [0007] of Appendix I discloses that the problem to be solved in JP '705 is to remove the ink which remained on the front face of a middle imprint object, i.e., the roller 4 illustrated, for example, in Fig. 1 of JP '705. The middle imprint object 4 conveys ink from the printing cylinder 2 to the surface 6a of the sheet 6. In paragraph [0017] of Appendix I, JP '705 discloses that the roller 32 relied upon in the office action as the at least one removing

roller does not spread and reduce undried ink as recited in claim 1 but rather removes residual ink in a powder state. The roller 32 is a brush roller that is used to scratch ink in a powder state from the imprint object 4. Therefore, JP '705 clearly fails to teach or suggest the recitation in claim 1 of "at least one removing roller in contact with an outer periphery of the at least one rotating roller and configured to rotate in order to both spread and reduce undried ink...." In addition, the roller 32 disclosed by JP '705 does not remove undried ink "transferred to the at least one rotating roller from a previously printed side of the sheet so that the ink on the outer periphery of the at least one rotating roller can be dried quickly." Accordingly, applicant respectfully request that the rejection of claim 1 under 35 U.S.C. 102(b) be withdrawn.

IV.

Applicants respectfully traverse the rejection of claims 3 and 10-12 under 35 U.S.C. § 103(a) as being unpatentable over *JP '705* in view of *Asano et al.*

Claims 3 and 10-12 depend directly or indirectly from claim 1. *Asano et al.* fails to make up for the deficiencies in JP '705 with the respect to the subject matter of claim 1. Accordingly, claims 3 and 10-12 patentable distinguish over the applied references for the reasons stated above with respect to claim 1. As pointed out in column 7 lines 50-58 of *Asano et al.*, the spur cleaner 41 contacts the teeth 400A and 400B at different positions so that the spur cleaner can more affective absorb or remove the ink from these teeth 400A and 400B. That is, the spur cleaner 41 disclosed by *Asano et al.* does not spread and reduce the undried ink as required by the at least one removing roller recited in claim 1 but rather a spur cleaner 41 absorbs or removes the ink from the teeth 400A and 400B. Therefore, whether taken alone or in any proper combination, the applied references fail to teach or suggest the subject matter in independent claim 1 and dependent claims 3 and 10-12.

V.

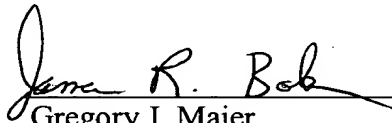
The rejection of claims 10-12 as being indefinite under the second paragraph of 35 U.S.C. 112 is respectfully traversed with respect to claims 10-12 as presently amended. Claim 10 has been amended to recite that the at least one rotating roller comprises said press roller and a pair of resist rollers. The phrase "at least one rotating roller" as recited in parent claim 1 clearly defines an apparatus that includes 1 or more rotating rollers. The amendment to claim 10 makes clear that the structure recited in that claim comprises as least three rotating rollers--namely, the press roller and a pair of resist rollers. Claims 11 and 12 were considered indefinite based on the indefiniteness alleged in the office action with respect to claim 10. Applicant's submits that claims 10-12 are now in full compliance with the second paragraph of 35 U.S.C. 112. Accordingly, applicant respectfully request that that rejection be withdrawn.

VI.

In view of the above remarks, applicant requests favorable reconsideration and allowance of claims 1, 3, and 10-12.

Respectfully submitted,

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*** NOTICES**

Computer Generation Translation of JP 10-166705

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]**[0001]**

[The technical field to which invention belongs] this invention forms an ink picture with the printing printing cylinder with which the peripheral face was equipped with mimeograph stencil paper, and relates to the mimeograph printing machine which carries out the indirect imprint of this ink picture through a middle imprint object at a form.

[0002]

[Description of the Prior Art] As shown in drawing 10, outline composition of this kind of mimeograph printing machine is carried out from the printing printing cylinder 70 with which the peripheral face was equipped with mimeograph stencil paper, the imprint pressurization roller 72 as a press means, and the ink supply means 74 prepared in the interior of the printing printing cylinder 70. The ink supply means 74 is equipped with the inking roller 76 which touches the inner skin of the printing printing cylinder 70, and Dr. Lola 78 who regulates the amount of ink to this inking roller 76, and ink is supplied through the printing cylinder axis of rotation 80 of the printing printing cylinder 70. If the form which passes the form conveyance path 82 is pressed by the peripheral face of the printing printing cylinder 70 with the imprint pressurization roller 72, the ink sent out by the inking roller 76 will be transferred on the surface of a form, and an ink picture will be formed of this. As ink, the emulsion type ink which generally forms the emulsion of a drainage system component and an oil system component is used. Composition distribution is made so that it may not solidify in process in which the printing printing cylinder 70 and mimeograph stencil paper are passed, and this has the property that stability is high.

[0003] However, usually, dozens of microns and since it is thick, the thickness of the ink which this solidification transferred to the form in addition to the late ink property has the long drying time, and has various problems by this. Namely, although a dryness process starts by volatilization of a drainage system component when a form imprints, since an oil system component remains on a form as it is, a bleeding picture and a strike-through phenomenon (ink should permeate to the background of a form) tend to generate it with not not much sufficient picture fixing nature. Moreover, since the drying time per sheet was very short when conveying a form continuously and performing high-speed abundant printing, when laminating delivery was carried out at a delivery tray, the so-called set-off phenomenon which the picture of a certain form transfers to the rear face of a form just above arose, and the debasement of printed matter had been caused.

[0004] Moreover, as shown in drawing 11, when it is the mimeograph printing machine dealing with process printing with which two or more parallel arrangements of the above-mentioned printing composition were carried out, When imprinting the ink picture of two amorous glance in the printing section B in the form which imprinted the ink picture of one amorous glance in the printing section A, the so-called offset phenomenon from which the ink of one amorous glance adheres to the mimeograph stencil paper of two amorous glance through a form, and the adhesion ink adheres to the following form again, and serves as a greasing and a double picture was produced.

[0005] Although carrying out quick drying of the ink picture transferred to the form by heat or hot blast

compulsorily as a method of coping with the problem resulting from the low drying property of such an ink picture etc. is considered variously, the thing of the indirect printing method (offset-printing method) indicated by JP,5-318898,A, for example is known from a viewpoint of a manufacturing cost or picture quality. This imprints in a form the ink picture which once imprinted the ink picture formed with the printing printing cylinder on the middle imprint object, and was imprinted by this middle imprint object with the welding pressure by the press means. The elastic sheet of oil resistance is stuck on the front face of a middle imprint object, and cleaning equipment removes the ink which remained on the elastic sheet after printing. Cleaning serves as a chemical-cleaning method which supplies cleaning liquid to a cleaning roller. According to this method, the ink picture transferred to the middle imprint object can fully be stuffed into a form, and can be made to be able to permeate it in addition to the ability to obtain the dryness promotion operation by the imprint process to a middle imprint object itself, climax (thickness) of an ink picture can be lessened, and dryness can be sped up.

[0006] As what is depended on the same indirect printing method as this, the printer of a publication is in JP,8-142302,A. In order to improve more imprint nature of the ink from a middle imprint object to a form in the case of this equipment, and in order to make easy to remove the ink which remains on a middle imprint object after an imprint, the front face at least is formed flat and smooth with the material of a middle imprint object which shows ** ink nature. Moreover, in order to remove remains ink, it has an ink removal liquid supply means to supply ink removal liquid to the front face of a middle imprint object. Ethylene tetrafluoride (PTFE), silicone rubber, etc. are illustrated as a material which shows ** ink nature.

[0007]

[Problem(s) to be Solved by the Invention] However, since it is the composition that all remove the ink which remained on the front face (it is the same an elastic sheet front face and the following in JP,5-318898,A) of a middle imprint object using cleaning liquid in the case of the above-mentioned conventional indirect printing method, the thin film of minute amount cleaning liquid was formed in the middle imprint body surface, and the new problem that bleed by this and a picture occurs has arisen. Moreover, in addition to the problem on such picture quality, since the mechanism of supply of cleaning liquid, a recovery means, a tank, etc. becomes indispensable, cleaning equipment's being complicated and the constitutional problem of enlarging have also been produced.

[0008] this invention sets offer of a mimeograph printing machine which can avoid complicated and enlargement of cleaning equipment as the main purpose while it can solve the problem on the quality of printed matter, such as a bleeding picture, and an offset phenomenon, a set-off.

[0009]

[Means for Solving the Problem] With the technology indicated by JP,5-318898,A and JP,8-142302,A, it responds to the ink picture formed with the printing printing cylinder as it is with a middle imprint object, and is based on the idea of imprinting this in a form in the state as it is. In the case of JP,8-142302,A, this is clear from the point which forms a front face at least with the material of a middle imprint object which shows ** ink nature, and mentions ethylene tetrafluoride (PTFE) to first in a roll as the material. That is, ethylene tetrafluoride (PTFE) is well known as a functional material excellently equipped with hydrofuge and both oil-repellent properties, and when the front face of a middle imprint object is formed with this material, an oil system component will also be held on the front face of a middle imprint object as it is not to mention the drainage system component of the ink picture imprinted from the printing printing cylinder. If it puts in another way, the cleaning equipment with which the remains ink which remains in the front face of a middle imprint object after an imprint also uses cleaning liquid since the oil system component is held as it is is needed. In addition, as a material which shows ** ink nature, although silicone rubber is otherwise illustrated, this is also adopted from same viewpoint. Moreover, in the case of JP,5-318898,A, since there is the publication "the elastic sheet of oil resistance", it is clear to be based on the same idea as JP,8-142302,A.

[0010] As stated above, the oil system component of the ink picture imprinted by the form is held, and the fundamental cause of the problems, such as a set-off, has time in dryness of the ink picture imprinted by this at this thing. While the drainage system component of an ink picture can acquire quick-drying

[of an ink picture] simultaneously with the imprint to a form if an oil system component is absorbed with a middle imprint object since it is absorbed by volatilization or the form at the time of the imprint to a form from a middle imprint object and volatilizes. Since there are few oil system components, it remains in the state of the powder which made the pigment of ink the subject, and the ink (non-imprinted ink) which remained on the front face of a middle imprint object can also be removed in a mere mechanical scraping mode, without using cleaning liquid for this reason. This is the meaning of this invention. The printing printing cylinder which specifically forms an ink picture by invention according to claim 1, In the mimeograph printing machine imprinted in the above-mentioned form once equipping the middle imprint object which a pressure welding is carried out [object] to this printing printing cylinder, and has the above-mentioned ink picture imprinted, and this middle imprint object with a press means to press a form and imprinting the above-mentioned ink picture on the above-mentioned middle imprint object. While the front face is formed at least with the material of the above-mentioned middle imprint object which has a solvent osmosis property, the composition of having a cleaning means to clean the front face after the imprint of the above-mentioned middle imprint object, without using cleaning liquid is taken.

[0011] In invention according to claim 2, in composition according to claim 1, 2 pressure weldings of the double-sided simultaneous printing of the above-mentioned printing printing cylinder were made possible to the front face of the above-mentioned middle imprint object, and the composition that one printing printing cylinder serves as the function of the above-mentioned press means is taken. In invention according to claim 3, the composition that the printing printing cylinder of the direction which does not serve as the function of the above-mentioned press means among the above-mentioned printing printing cylinders is formed free [attachment and detachment] to the above-mentioned middle imprint object is taken in composition according to claim 2. In invention according to claim 4, the composition that the pressure welding of the process printing of two or more above-mentioned printing printing cylinders is made possible to the circumference of a front face of the above-mentioned middle imprint object is taken in composition according to claim 1.

[0012] While the parallel arrangement of two or more printing printing cylinders which form an ink picture is carried out in invention according to claim 5 corresponding to each color of process printing. The pressure welding of the middle imprint object which has the above-mentioned ink picture imprinted is individually carried out to all of these printing printing cylinders, or the printing printing cylinder after the 2nd edition. And it has a press means for pressing a form on the above-mentioned printing printing cylinder or the above-mentioned middle imprint object, and imprinting the above-mentioned ink picture in this form. The composition that the front face is formed with the material of the above-mentioned middle imprint object which has a solvent osmosis property, and equips the imprint position downstream to the above-mentioned form with a cleaning means to clean the front face of the above-mentioned middle imprint object, without using cleaning liquid is taken at least.

[0013] In invention according to claim 6, the composition of carrying out the pressure welding of the member which has a solvent osmosis property on the front face of the above-mentioned middle imprint object before the imprint process to the above-mentioned form is taken in composition according to claim 1, 2, 3, or 5. In invention according to claim 7, the composition of carrying out the pressure welding of the member which has a solvent osmosis property on the front face of the above-mentioned middle imprint object in the downstream of the printing printing cylinder of each above is taken in composition according to claim 4. In invention according to claim 8, the composition that the above-mentioned press means has the heat source is taken in composition a claim 1, 4, or given in five. In invention according to claim 9, in composition a claim 1, 4, or given in five, once transferring the oil system component of the ink accumulated inside the above-mentioned middle imprint object to the above-mentioned press means, the composition of making it transferring to the rear face of the above-mentioned form, and discharging is taken. In invention according to claim 10, the composition of holding in the position which carried out the pressure welding of the above-mentioned press means to the above-mentioned middle imprint object is taken in composition a claim 1, 4, or given in five.

[0014]

[Example] Hereafter, one example of this invention is explained based on drawing 1 and drawing 2. The mimeograph printing machine is equipped with the printing printing cylinder 2, the middle imprint object 4 by which the pressure welding was carried out to the peripheral face of this printing printing cylinder 2, the imprint pressurization roller 8 as a press means to press a form 6 on this middle imprint object 4, and the cleaning equipment 10 which cleans the front face after the imprint of the middle imprint object 4 over a form 6 as shown in drawing 1. The imprint pressurization roller 8 is formed so that a pressure welding may be carried out to the middle imprint object 4 and the state may be held (claim 10).

[0015] Outline composition of the printing printing cylinder 2 is carried out from the screen drum 12 of porous structure, the ink supply means 14 with which the interior of this screen drum 12 was equipped, and the mimeograph stencil paper 16 with which twist around the peripheral face of the screen drum 12, and it is equipped in the state. The ink supply means 14 consists of Dr. Lola 24 who regulates the amount of ink from ink ***** 22 formed between the ink delivery pipe 18 as the axis of rotation of the screen drum 12, the inking roller 20 which supplies emulsion type ink to the inner skin of the screen drum 12, and this inking roller 20. After the mimeograph stencil paper 16 has a picture formed by the melting punching method at a thermal head based on the image information of a manuscript by the plate feeder which is not illustrated, it is cut from a roll state by predetermined length, has the nose of cam pinched by the clamper 26 with which the peripheral face of the screen drum 12 was equipped, and the screen drum 12 is equipped with it. The mimeograph stencil paper 16 after the completion of printing is processed based on the predetermined ** version process.

[0016] The ink supplied from the ink supply means 14 passes through the screen drum 12 in the direction of a path, and oozes out by the contact pressure of the middle imprint object 4 from the punch station of the mimeograph stencil paper 16, and an ink picture is imprinted by this on the front face of the middle imprint object 4. The ink picture imprinted by the middle imprint object 4 is imprinted by press operation of the imprint pressurization roller 8 at surface 6a of a form 6.

[0017] The middle imprint object 4 is formed in the silicone rubber layer 28 as a material into which the front face has a solvent osmosis property, as shown in drawing 2 (claim 1). Although silicone rubber is excellent in water repellence, it is known that it is inferior to ethylene tetrafluoride (PTFE) etc. in oil repellency. Paying attention to the property fall in the oil repellency of this silicone rubber, this is used as a solvent osmosis property. If a part of ink picture is explained typically, both a drainage system component and an oil system component exist in a front face, and the ink picture 30 immediately after imprinting from the printing printing cylinder 2 is in the big climax state, as shown in the 1st process of drawing 2. If time passes, as shown in the 2nd process, a certain amount of oil system component 30a of the ink picture 30 will be incorporated in the silicone rubber layer 28 with the solvent osmosis property of the silicone rubber layer 28, and drainage system component 30b etc. will remain in a front face by the few oil system component and water repellence. Since the imprint to a form 6 is made in this state, the ink picture 30 is imprinted by the front face of a form 6 in the state with few oil system components. Drainage system component 30b is absorbed by volatilization or the form 6, and decreases rapidly. For this reason, as shown in the 3rd process, both the ink that is not imprinted [which remains on the front face of the middle imprint object 4 after an imprint] will be in the powder state with few oil system components and drainage system components which made the pigment the subject.

[0018] The cleaning equipment 10 for removing this residual ink consists of a cleaning roller 32, a squeezing roller 34 in contact with this cleaning roller 32, and casing 36 that holds the removed ink. The brush roller is used for a cleaning roller 32. As mentioned above, residual ink is in a powder state, and since there are very few oil system components, the brush roller as a mechanical removal means is enough, and chemical washing with cleaning liquid is unnecessary. The ink scratched by the cleaning roller 32 is scratched by the squeezing roller 34, and is collected in casing 36.

[0019] With the pressure welding before a form 6 is sent between the middle imprint object 4 and the imprint pressurization roller 8, the oil system component accumulated in the silicone rubber layer 28 is transferred to the imprint pressurization roller 8, and is further transferred to rear-face 6b of a form 6 from the imprint pressurization roller 8 at the time of the imprint to a form 6 (claim 9). For this reason,

even if it forms only the surface-layer portion of the middle imprint object 4 with the material which has a solvent osmosis property, the saturation state by accumulation of an oil system component cannot happen, but can always demonstrate a solvent osmosis property. Moreover, by using emulsion type ink, the ink of amount sufficient also on the front face of the silicone rubber layer 28 can be carried, namely, the ink of sufficient amount to obtain proper picture concentration can be carried, and it becomes easy [cleaning] as mentioned above by absorbing the oil system component.

[0020] Thus, if a front face is formed at least with the material of the middle imprint object 4 which has a solvent osmosis property, since the oil system component of the ink picture which is imprinted by the middle imprint object 4 from the printing printing cylinder 2, and remains on the front face of the middle imprint object 4 can be lessened, the rate of drying of the ink picture imprinted to the form 6 can be sped up sharply, and a bleeding picture, a strike-through, and a set-off can be prevented. Therefore, high quality and high-speed printing become possible. In addition, although only the surface layer of the middle imprint object 4 was formed in the above-mentioned example with the material which has a solvent osmosis property, you may form the whole with this material. Moreover, it is suitably employable if it has not only silicone rubber but water repellence as a material which has a solvent osmosis property. Moreover, since an attachment-and-detachment mechanism becomes unnecessary while the imprint pressurization roller 8 can prevent the noise by colliding to the middle imprint object 4, since it is the composition which always carries out the pressure welding of the imprint pressurization roller 8 to the middle imprint object 4, a cost cut can be aimed at, and improvement in the endurance of the imprint pressurization roller 8 and the middle imprint object 4 can be planned further. Of course, even if it forms the imprint pressurization roller 8 in the middle imprint object 4 free [attachment and detachment] according to an attachment-and-detachment mechanism, there is no change in the function based on the above-mentioned solvent osmosis property being obtained.

[0021] Drawing 3 and drawing 4 show the example corresponding to claims 2 and 3. In addition to the key objective "offer of a mimeograph printing machine which can avoid complicated and enlargement of a cleaning means while the problem on the quality of printed matter, such as a bleeding picture, and an offset phenomenon, a set-off, is solvable", this example aims at evasion of useless use of the mimeograph stencil paper in the case of printing only one side in the mimeograph printing machine of a double-sided simultaneous printing method. In addition, what has the the same above-mentioned example and a the same sign is simplified and shown (it is the same hereafter). Moreover, the explanation about the composition and a function is omitted, as long as there is no need, especially since it is the same as that of the above-mentioned example (it is the same hereafter). As shown in drawing 3, outline composition of the mimeograph printing machine dealing with double-sided simultaneous printing in this example is carried out from the middle imprint object 4, the printing printing cylinder 40 of the bottom by which a pressure welding is carried out in the upper and lower sides of this middle imprint object 4, respectively, the lower printing printing cylinder 42, and the cleaning means 10 (claim 2). The supply direction of the ink in the lower printing printing cylinder 42 is the direction of Arrow N. For convenience, if the ink color of red and the lower printing printing cylinder 42 is made blue for the ink color of the upper printing printing cylinder 40, middle printing through the middle imprint object 4 will be only a blue ink picture imprinted by rear-face 6b of a form 6, and the ink picture of the red imprinted by surface 6a of a form 6 will be directly imprinted from the printing printing cylinder 40 like an old method. Therefore, in the imprint of a blue ink picture, the printing printing cylinder 40 will function as an imprint pressurization roller 8 in the above-mentioned example in this case, and the middle imprint object 4 will present the same function in the imprint of a red ink picture. As the above-mentioned example explained the non-imprinted ink after an imprint, it is scratched with the cleaning means 10 and the front face of the middle imprint object 4 is maintained on an always new front face.

[0022] Moreover, the lower printing printing cylinder 42 is formed free [attachment and detachment] to the middle imprint object 4 by the driving means which are not illustrated (claim 3). When performing one side printing, as shown in drawing 4, the lower printing printing cylinder 42 is separated from the middle imprint object 4. The direct imprint method which uses the middle imprint object 4 as an imprint pressurization roller by this can perform one side printing. In the former, although the front face of the

printing printing cylinder which is not used purposely needed to be equipped with non-engraved mimeograph stencil paper so that a form rear face might not become dirty in the ink of the printing printing cylinder which is not used when the mimeograph printing machine dealing with double-sided simultaneous printing performed one side printing, since the worries about ink dirt disappear, useless consumption of mimeograph stencil paper is avoidable according to the thing of this example.

[0023] Drawing 5 shows the example corresponding to claims 4 and 7. The mimeograph printing machine in this example has simultaneous multicolor printing machine ability, the pressure welding of the two printing printing cylinders 44 and 46 is carried out to the circumference of the front face of one middle imprint object 4, and the solvent absorption meanses 48 and 50 are formed in the downstream of each printing printing cylinder 44 and 46. A solvent absorption means 48 by which it is located in the downstream of the printing printing cylinder 44 consists of a blotter roller 52 formed by the member which has a solvent osmosis property, a blotter squeezing roller 54 which fails to scratch the ink adhering to the blotter roller 52, and casing 56 which holds the ink which failed to be scratched. Similarly, a solvent absorption means 50 by which it is located in the downstream of the printing printing cylinder 46 consists of a blotter roller 52, a blotter squeezing roller 54, and casing 58. The solvent said here points out the oil system component contained in emulsion type ink, and is a liquid paraffin. From the front face of the middle imprint object 4, since, as for a far portion, the solvent osmosis property of the middle imprint object 4 is not fully careful to the method of outside yet, as for the ink picture imprinted by the middle imprint object 4, an oil system component exists mostly. By absorbing this oil system component before an imprint process, while scratching excessive ink again, a good printing picture without bleeding can be acquired by making common the ink of the mountain configuration formed on the front face of the middle imprint object 4. Moreover, since the adhesion of ink is improved when an oil system component decreases, improvement in imprint efficiency can be aimed at. The solvent absorption meanses 48 and 50 are established from this viewpoint. In addition, each blotter roller 52 is taken with the middle imprint object 4, and is carried out the surroundings. Moreover, each blotter roller 52 is formed by silicone rubber like the middle imprint object 4.

[0024] When the ink color of red and the printing printing cylinder 46 of the 2nd edition is made blue for the ink color of the printing printing cylinder 44 of the 1st edition, the ink picture formed on the middle imprint object 4 in red ink has excessive ink and an oil system component absorbed by the blotter roller 52 of the solvent absorption means 48 for convenience. By this, the offset phenomenon by which red ink is re-imprinted is prevented by the mimeograph stencil paper of the printing printing cylinder 46 dealing with blue ink in a downstream. Then, although a blue ink picture is formed in the middle imprint object 4, excessive ink and an oil system component are absorbed with the blotter roller 52 of the solvent absorption means 50 before an imprint. Subsequently, the ink picture of two colors is imprinted by press operation of the imprint pressurization roller 8 on a form 6. It is failed to scratch [the cleaning means 10] the non-imprinted ink which was not able to be imprinted, and the front face of the middle imprint object 4 becomes new, and the next printing is equipped with it. By considering as such composition, it becomes possible to obtain the printed matter of two colors simultaneously with one middle imprint object 4. Although the example dealing with 2 color simultaneous printing was shown in this example, the printed matter of two or more colors corresponding to the number can be simultaneously obtained by increasing the number of printing printing cylinders.

[0025] Drawing 6 and drawing 7 show the example corresponding to a claim 5. The mimeograph printing machine in this example carries out the two-piece parallel arrangement of the printing composition section which has the middle imprint object 4 shown in the first example in the conveyance direction of a form 6, and is constituted. According to this example, since an oil system component is absorbed with the solvent absorption property of the imprint object 4, it can fully dry in the process to the 2nd edition, and the red ink of the 1st edition can prevent the offset phenomenon and set-off phenomenon which had produced the blue ink of the 2nd edition with the conventional composition of drawing 11 since the oil system component was similarly absorbed with the solvent absorption property of the imprint object 4. Drawing 7 is the example which formed the middle imprint object 4 only in the printing composition section of the 2nd edition. In the case of this example, although the 1st edition is

the direct imprint composition of the conventional method, in case the blue ink of the 2nd edition is put on the form 6 in which the red ink of the 1st edition appeared, the red ink which moved to the middle imprint object 4 is scratched with the cleaning means 10 while it has an oil system component absorbed there. Therefore, since an offset picture will not be generated on a form 6 and the excessive red ink on a form 6 will be scratched with the middle imprint object 4 as a result, generating of a bleeding picture is also suppressed.

[0026] Drawing 8 shows the example corresponding to claims 6 and 8. Although it is an example dealing with process printing by the parallel-arrangement composition shown by drawing 6, before the imprint process from the same viewpoint as the example shown by drawing 5 to a form, the solvent absorption means 58 is established possible [absorption of the oil system component of the ink picture imprinted by the middle imprint object 4] (claim 6). The solvent absorption means 58 consists of the blotter roller 52, a brush roller 60 which scratches the ink adhering to this blotter roller 52, a blotter squeezing roller 54, and casing 62. Moreover, the imprint pressurization roller 64 in this example has the heat source (claim 8), and can heat it now at 100 degrees C. Since the ink on the middle imprint object 4 is heated by this, while the rate of an imprint to a form 6 improves and the burden of the cleaning means 10 is mitigated, a more high-concentration printing picture can be acquired. The optimum value from which the temperature of this imprint pressurization roller 64 was beforehand obtained by experiment etc. according to ink composition will be set up.

[0027] Although a cleaning means 10 to have the brush roller 32 was used in each above-mentioned example, as shown in drawing 9, you may use the cleaning means 66 which lets out the fiber sheet 68 and is moved in the direction of an arrow with a roller 69, the pressurization roller 70, and the rolling-up roller 71. In addition, in each above-mentioned example, on explanation, although having called the oil system component of the composition component of ink has pointed out the liquid paraffin which is a principal component, it is not limited to this and the above-mentioned effect by the solvent osmosis property same about other general solvents, for example, a hydrocarbon system, can be acquired.

[0028]

[Effect of the Invention] Since it considered as the composition which forms a front face at least with the material of a middle imprint object which has a solvent osmosis property according to invention according to claim 1 Since the oil system component of the ink picture which is imprinted by the middle imprint object from a printing printing cylinder, and remains on the front face of a middle imprint object can be lessened, the rate of drying of the ink picture imprinted to the form can be sped up sharply, and a bleeding picture, a strike-through, a set-off, and an offset phenomenon can be prevented. Therefore, high quality and high-speed printing become possible. Moreover, since it is the composition using the cleaning means which does not use cleaning liquid, the mechanism of supply of cleaning liquid, a recovery means, a tank, etc. is not needed, but, therefore, complication of a cleaning means and enlargement can be avoided. Moreover, the bleeding picture by the thin film of the cleaning liquid which remained in order not to use cleaning liquid is avoidable.

[0029] Since it considered as the composition which makes possible the pressure welding of the double-sided simultaneous printing of two printing printing cylinders to the front face of the above-mentioned middle imprint object according to invention according to claim 2, in addition to the above-mentioned basic effect, a quality simultaneous double-sided printing picture without generating of a set-off phenomenon can be acquired, and a quality simultaneous double-sided printing picture with little bleeding can be acquired. Since one printing printing cylinder was considered as the composition which can attach and detach freely to the middle imprint object in double-sided simultaneous printing composition according to invention according to claim 3, it can add to the above-mentioned basic effect, and useless consumption of the mimeograph stencil paper in one side printing can be avoided. Since it considered as the process-printing composition which has arranged two or more printing printing cylinders around one middle imprint object according to invention according to claim 4, in addition to the above-mentioned basic effect, miniaturization of process-printing composition can be attained. Since it considered as the composition which carries out the parallel arrangement of two or more printing printing cylinders, and carries out the pressure welding of the above-mentioned middle imprint object to

the printing printing cylinder after the 2nd [at least] edition according to invention according to claim 5, in addition to the above-mentioned basic effect, an offset picture and a quality process-printing picture without generating of a set-off phenomenon can be acquired.

[0030] reduction of as opposed to [since it considered as the composition which absorbs a solvent before the imprint to a form according to invention of a claim 6 and seven publications, while being able to aim at improvement in the rate of an imprint] cleaning of a load -- cleaning -- reinforcement of a member can be attained Moreover, the prevention precision of the bleeding picture in the basic effect can be raised further. reduction of as opposed to [since the press means considered as the composition which has a heat source according to invention according to claim 8, while being able to aim at improvement in the rate of an imprint in addition to the above-mentioned basic effect] cleaning of a load -- cleaning -- reinforcement of a member can be attained Since it considered as the composition which discharges the oil system component accumulated on a middle imprint object via a press means according to composition according to claim 9, in addition to the above-mentioned basic effect, the solvent absorption function by the solvent osmosis property of a middle imprint object can always be demonstrated on this level. Since an attachment-and-detachment mechanism becomes unnecessary while being able to prevent the noise by a press means colliding with a middle imprint object, since it considered as the composition which holds a press means in the state where the pressure welding was carried out to the middle imprint object according to composition according to claim 10, a cost cut can be aimed at, and the endurance of a press means and a middle imprint object can be raised by composition which does not collide further.

[Translation done.]

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TECHNICAL FIELD

[The technical field to which invention belongs] this invention forms an ink picture with the printing printing cylinder with which the peripheral face was equipped with mimeograph stencil paper, and relates to the mimeograph printing machine which carries out the indirect imprint of this ink picture through a middle imprint object at a form.

[Translation done.]

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CLAIMS

[Claim(s)]

[Claim 1] The mimeograph printing machine characterized by having a cleaning means to clean the front face after the imprint of the above-mentioned middle imprint object, without using cleaning liquid while being formed with the material characterized by providing the following. The printing printing cylinder which forms an ink picture. The middle imprint object which a pressure welding is carried out [object] to this printing printing cylinder, and has the above-mentioned ink picture imprinted. Once equipping this middle imprint object with a press means to press a form and imprinting the above-mentioned ink picture on the above-mentioned middle imprint object, even if there are few above-mentioned middle imprint objects in the mimeograph printing machine imprinted in the above-mentioned form, a front face is a solvent osmosis property.

[Claim 2] The mimeograph printing machine according to claim 1 which 2 pressure weldings of the double-sided simultaneous printing of the above-mentioned printing printing cylinder are made possible to the front face of the above-mentioned middle imprint object, and is characterized by one printing printing cylinder serving as the function of the above-mentioned press means.

[Claim 3] The mimeograph printing machine according to claim 2 characterized by forming the printing printing cylinder of the direction which does not serve as the function of the above-mentioned press means among the above-mentioned printing printing cylinders free [attachment and detachment] to the above-mentioned middle imprint object.

[Claim 4] The mimeograph printing machine according to claim 1 characterized by making possible the pressure welding of the process printing of two or more above-mentioned printing printing cylinders to the circumference of a front face of the above-mentioned middle imprint object.

[Claim 5] While the parallel arrangement of two or more printing printing cylinders which form an ink picture is carried out corresponding to each color of process printing The pressure welding of the middle imprint object which has the above-mentioned ink picture imprinted is individually carried out to all of these printing printing cylinders, or the printing printing cylinder after the 2nd edition. And while having a press means for pressing a form on the above-mentioned printing printing cylinder or the above-mentioned middle imprint object, and imprinting the above-mentioned ink picture in this form and forming the front face at least with the material of the above-mentioned middle imprint object which has a solvent osmosis property The mimeograph printing machine characterized by having a cleaning means to clean the front face after the imprint of the above-mentioned middle imprint object, without using cleaning liquid.

[Claim 6] The mimeograph printing machine according to claim 1, 2, 3, or 5 characterized by carrying out the pressure welding of the member which has a solvent osmosis property on the front face of the above-mentioned middle imprint object before the imprint process to the above-mentioned form.

[Claim 7] the mimeograph printing machine according to claim 4 characterized by carrying out the pressure welding of the member which has a solvent osmosis property on the front face of the above-mentioned middle imprint object in the downstream of the printing printing cylinder of each above

[Claim 8] The claim 1 characterized by the above-mentioned press means having the heat source, 4, or a

mimeograph printing machine given in five.

[Claim 9] The claim 1 characterized by making it transfer to the rear face of the above-mentioned form, and discharging once transferring the oil system component of the ink accumulated inside the above-mentioned middle imprint object to the above-mentioned press means, 4, or a mimeograph printing machine given in five.

[Claim 10] The claim 1 characterized by holding the above-mentioned press means in the position which carried out the pressure welding to the above-mentioned middle imprint object, 4, or a mimeograph printing machine given in five.

[Translation done.]